

Rignano, EUGENIO. *Essais de Synthèse Scientifique.* Paris, Librairie Félix Alcan; 1912.

THIS is a remarkable book which will repay study. It is an attempt to state, with brevity and without any exhaustive review of the evidence, some of the generalisations or synthetic conclusions which have been gained in the fields of biology and sociology. The author, so far as we have observed, does not profess to present any new facts or fresh evidence. He is not a researcher or an experimentalist. He is frankly a theorist. His aim is to philosophise the facts already garnered in the above-mentioned departments of science, to present a conspectus of assured results, to systematise these results and show their inferences and implications. He is obviously fully-equipped for this ambitious task. His thought is always pregnant, and his style at once lucid and profound, terse and pungent. The book suffers somewhat from limitations of space, and from the vast extent of the field surveyed by the writer. To present in a short volume of 294 pages an adequate outline of the philosophical import of the various theories of development, evolution or "transformism"—to use the term much employed by the writer—to discuss the nature of nerve energy, of memory and of consciousness, to analyse the true import of "le phénomène religieux," to deal with "le matérialisme historique," and finally to subject the various doctrines of socialism to a close scrutiny, might well seem an impossible task. But the book is a criticism, not an exposition. It assumes a large amount of knowledge on the part of the reader. It is addressed in the main to specialists, or at all events to readers thoroughly familiar with current science and current philosophy. As such it will be found valuable, the more so as we are not acquainted with any book which takes exactly the same point of view. It is a summary—a critical summary—an attempt to "mark time" and signalise the point of the road which we have reached in the arduous march of science and philosophy. As such we shall deal with it, without suggesting that some other way would have been better, or asking from the author what he does not profess to supply. He has a right to his method, while we have a right to enquire whether the use which he makes of it is sound and fruitful.

The preface is devoted to a discussion of the relative part played in the advance of knowledge by the "théoricien" and the "expérimentateur spécialiste." The author has much to say on the narrowness, the limitation of view, and the excessive "concreteness" which is apt to characterise the researcher in some limited field of science, and the need for correcting his conclusions by the work of synthesis, induction and generalisation. "Le théoricien," he insists, "est enfin, en thèse générale, moins exclusiviste, moins unilatéral, et plus objectif que le spécialiste expérimentateur." We believe this to be a most just contention. Many of the paths of science are to-day almost choked by an accumulation of ill-digested data, unorganised facts, the rough sweepings of our laboratories, without order or method, and in this state wholly unfruitful. What is needed is the illuminating hypothesis, the co-ordinating generalization. Facts, no doubt, are all important, but it is often forgotten that observation and experiment are too often wholly in vain unless guided and controlled by some method or theory. On this subject one of the greatest of all experimentalists, Claud Bernard, wrote as follows: "It is true that the results of experiment must be recorded by a mind stripped of hypotheses and preconceived ideas. But we must be careful how we proscribe the use of ideas and hypotheses when the work in hand is to set experiments on foot, or imagine means of observation. Here, on the contrary, as we shall soon see, the imagination must be given free course; the idea is the principal root of all reasoning and all invention, to it is due the credit of every kind of initiative. To stifle or drive it away under pretext that it may do harm were folly; all we need is to regulate it and provide a criterion for it."

In his first essay M. Rignano discusses "La Valeur Synthétique du Transformisme," subjecting to an acute analysis the work of Lamarck, Darwin, Weismann, Galton, Roux, De Vries and other workers in this field. The writer, with possibly a certain amount of bias, natural in a Frenchman, inclines to a Neo-Lamarckian view of the law of descent, rejecting both the theory of preformation and epigenesis as inadequate. "Qu'il nous soit permis," he says, "de rappeler ici que cette immense collection de résultats expérimentaux, dont toute une série dépose décidément contre le préformisme, tandis qu'une autre série n'est pas moins décidément contraire à l'épigenèse, semble déposer plutôt en faveur d'une nouvelle hypothèse centro-épigénétique, suivant laquelle le développement de chaque partie dépendrait, non pas de celui de toutes les autres parties du soma, mais bien plutôt de l'action continue que la substance germinale, qui serait située en zone bien déterminée de ce dernier, dite zone centrale, exercerait sur le reste de l'organisme pendant le cours entier du développement; et que cette hypothèse est peut-être susceptible de fournir à elle seule l'explication que l'on cherche touchant la façon dont la transmissibilité des caractères acquis pourrait se réaliser." The writer proceeds to deal at length with the well-known Mnemic theory of evolution, associated in particular with the names of Hering and Semon. According to this theory, memory is the general and fundamental function of all living substance. As the brain-cell is the seat of individual memory, so the sex-cell is the seat of racial memory. Racial memory begins with the union of the sex-cells. This act, by a species of mnemonics, furnishes the clue to the next step, just as in brain memory one event by association of ideas recalls another event. This theory is supposed to throw light upon the specialised action of cells, the transmissibility of acquired characters, the innate instincts of animals, many psychical phenomena, and the facts of assimilation. It is subjected to a critical analysis by M. Rignano, who concludes, justly in our opinion, that the analogy is misleading. "La comparaison du phénomène vital en général avec le phénomène mnémonique, malgré les profondes analogies qu'on a mises en évidence, ne peut laisser de paraître artificieuse, si même elle ne se réduit pas à une innocente métaphore, quand on ignore ce qu'est en réalité le phénomène mnémonique proprement dit. Comme ce dernier, la mémoire psychique commune, appartient à une catégorie de phénomènes moins généraux et plus complexes que le phénomène vital, car tout phénomène de mémoire psychique est certainement un phénomène vital, tandis que la réciproque n'est pas vraie, comment le phénomène mnémonique peut-il servir à expliquer le phénomène vital?"

In his second essay the author develops his "Hypothèse Centro-épigénétique du Développement," of which we have already spoken. This subject involves a discussion of the essential nature of life, and the author, though abstaining from any dogmatic opinion, appears to incline to the view that no physico-chemical theory of life is tenable, and that we have to assume "une énergie vitale, une forme d'énergie en soi différente de toutes les autres." This is Neo-Vitalism, a point of view long consigned to neglect, but in recent years revived by many thinkers, amongst others by M. Bergson. The subject is too large and too difficult to be more than alluded to here. It is enough to say that a crude mechanical view of the nature of life, from being a dominant doctrine, has now to fight for existence.

M. Rignano's theory of Consciousness will be understood from the following paragraph: "Rien n'est plus propre que ces exemples, que nous pourrions multiplier à plaisir,—à mettre en évidence que chaque état psychique n'est par lui-même ni conscient, ni inconscient, mais qu'il devient l'un ou l'autre seulement *par rapport à quelque autre état psychique*. En d'autres termes, la conscience n'est pas un caractère en soi

qui puisse appartenir à un état psychique pour son propre compte; elle est la caractéristique d'un rapport entre deux ou plusieurs états psychiques."

The essay upon "Le Phénomène Religieux" contains some interesting matter. The author cites with approval the well-known view of Hume that primitive man derived his earliest conception of religion from the notion that in the physical world events were controlled by a will, or wills, similar to that of the human will. He does not, however, regard this analysis as adequate, and finds the Ghost Theory of Spencer equally insufficient to account for the facts. His own view is that the essential element in primitive religion is the element of *propitiation*. "Le premier homme qui se jeta la face contre terre, non plus seulement devant un autre homme, celui-là fut le premier croyant et le premier fondateur de toutes les religions." According to this theory, fear of the unknown, terror in the face of the brute forces of nature, and the belief that, by acts of submission or by some form of sacrificial offering, evil could be averted or benefits obtained, was the germ of religion. The intensity and persistence of this belief are traced by M. Rignano to "social suggestion," to "le besoin d'une telle fonction de consolidation et de réglementation sociale qui fût apte à faire d'un simple agrégat amorphe et fluide d'individus, capables d'ailleurs de mener chacun une vie autonome et isolée, un seul tout consistant et en fait un véritable organisme social." "C'est ainsi que la religion élève et soutient toutes les institutions sociales—à commencer par celle de la propriété individuelle ou collective—qui servent de diques soit pour contenir et canaliser le cours de certaines séries de faits ou de rapports sociaux, soit pour opposer une barrière infranchissable à des actes ou des rapports antisociaux."

That these elements have entered into the genesis of religion can hardly be denied. Whether such analysis is adequate is, however, another question, too vast to be dealt with adequately here. While M. Rignano thinks religion is destined to disappear as "organe et phénomène social" he thinks it may endure as a "manifestation psychique et fait individuel." On this subject he writes as follows: "La projection de notre propre finalisme en dehors de nous mêmes dans l'univers tout entier, dernier résidu philosophico-méta-physique du préjugé grossièrement aministe de l'homme primitif; l'aspiration au triomphe du bien sur le mal; le besoin, encore plus en général, de croire que tout ce qui a de valeur pour nous, quand même nous en serions privés pour l'instant, se conserve toujours, à travers tous les accidents du monde réel, et comme en puissance, pour se réaliser plus tard; tout cela joint aux plus douces, intimes et ineffables consolations qu'est seule capable de donner l'illusion née d'un ardent désir; telles sont et demeureront de tout temps les sources éternelles de religiosité pour toutes les âmes plus ou moins portées au mysticisme."

The origin of religion is, no doubt, a fascinating subject, but one involved in great difficulty and obscurity. We cannot really penetrate with certainty into the mentality of primeval man. How far fear was the dominant element, what weight is to be assigned to awe and reverence, whether an inchoate cosmic sense of the littleness of man and the grandeur and immensity of the universe—a sentiment which finds eloquent and poignant expression in the Psalms—was operative, how far social needs co-operated, whether primitive man was vexed with the "Whence?" "Why?" and "Whither?" which agitate our own minds, are questions never likely to be finally answered. Most of the solutions offered are too simple, too limited, too prosaic to be altogether satisfactory. The philosophers commonly lack imagination. Perhaps it may turn out that the religious sense is incapable of analysis, but is rather an original and specific endowment of the human mind. We must expect the widest differences of view upon this subject according to the mental endowments,

the preconceptions, and the prejudices of men. "The history of religion," says Frazer, "is a long attempt to reconcile old custom with new reason, to find a sound theory for absurd practice." That is one point of view. "The essence of religion," says Warde Fowler, "in all stages of civilisation lies in the feeling of the individual that his own life, his bodily and mental welfare, is dependent upon the Divine, as he and his regard it." That is another point of view. To discuss these conflicting views with any attempt at thoroughness would divert us too far from the proper field of eugenics.

The concluding essays in M. Rignano's work are devoted to a summary and criticism of collectivist and socialist theories and doctrines. His remarks are temperate and lucid, but, as they do not present any particular novelty, they need not detain us. He concludes this portion of his subject with an amiable hope which we may be allowed to endorse: "Quel que soit, du reste, cet avenir plus ou moins inconnu, nous pouvons du moins—comme conclusion de tout ce qui vient d'être dit—constater ce fait qui est d'un bon augure. C'est que l'éveil d'une conscience collective dans la classe la plus misérable, dans toute cette si grande fraction de nos semblables jusqu'ici ravalée, constitue déjà par lui-même un élargissement et un perfectionnement pour l'ensemble de la conscience sociale; tandis que la puissance accrue de cette classe a déjà rendu moins inégales les diverses forces sociales en conflit. Il en est résulté un plus grande sensibilité sociale à l'égard de toutes les peines et de toutes les souffrances dont gémissent encore d'innombrables créatures humaines et la formation d'un nouvel idéal suprême d'une équité plus grande. De façon qu'il est permis désormais d'espérer que dans le choc de tous les futurs antagonismes, quelle qu'en puisse être la solution définitive, l'humanité n'aura plus à craindre de sombre dans de plus profonds abîmes, mais qu'en toute confiance et sécurité elle pourra monter vers des cimes plus hautes et de meilleures destinées."

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Niceforo, ALFREDO. *Contributo allo studio della misura e della diffusione della Cultura in Italia: I nuovi progetti per una Statistica della Vita Intellettuale Italiana.* Perugia, Unione Tipografica Co-operativa, 1912.

IN the year 1910 a law was passed in Italy, in connection with the quinquennial census, authorising the reorganisation of the Central Statistical Office. On the invitation of the ministers concerned, Professor Niceforo has taken part in the work of reorganisation, in particular by the framing of several schemes for the collection and storage of statistical data. Of these one of the most interesting is his proposal for forming a card catalogue of all students at the universities and other institutions for higher education, in order to investigate the diffusion of culture in different parts of Italy and to obtain a statistical measure of the intellectual life of the country.

The secretary of each university would be required, at the beginning of the academic year, to enter particulars concerning each student on the face of a separate card which is divided into suitable spaces for the various items, such as name, date, and place of birth, nationality, name and occupation of father, place of residence of family, nature of proposed studies, and so on. To facilitate sorting, these cards have a triangular space on the left hand upper corner tinted in different shades to indicate the course of studies to be pursued. On the back of the card is a list of the examinations involved in that particular course, with a space after each in which the secretary is required to enter the student's degree of success. At the end of each academic year the cards, filled in up to date, have to be sent to the Central Statistical Office to be filed and to serve as the basis for statistical returns.